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AN EXPLORATORY STUDY OF THE PSYCHOLOGICAL IMPACT AND CLINICAL CARE OF PERINATAL LOSS

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Perinatal loss is a unique and potentially traumatizing experience that can leave bereaved parents struggling with a host of mental health difficulties. In this exploratory study of the predictors and mental health outcomes associated with perinatal loss, we examined a cohort of women who experienced a perinatal loss within the previous 5 years. Results suggest perinatal loss is associated with considerable distress and impairment for some women, with greater severity primarily predicted by maladaptive coping skills, low social support, and intense emotionality following the loss. The majority of women in this sample were satisfied with the care they received in the hospital after their loss, including their engagement in reportedly contentious bereavement rituals in the medical setting. Limitations of this research are noted, and suggestions for future research and clinical care are provided.

Childbirth is one of the most significant milestones in human life, filled with hope, expectation, joy, fear, and faith. Yet, for the 1%–2% of couples who experience a perinatal loss in the United States

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each year (Hoyert, Smith, & Arias, 2001; Richardus, Graafmans, Verloove-Vanhorick, & Mackenbach, 1998), it can be an experience filled with tragedy, mourning, and despair. Perinatal loss, defined as fetal death beyond 20 weeks gestation through infant death 1-month postpartum, can be devastating and traumatizing for parents, and places the bereaved at risk for postloss mental health complications, particularly symptoms of posttraumatic stress disorder (PTSD), depression, anxiety, and chronic or complicated grief (Hughes, Turton, Hopper, & Evans, 2002). However, after an initial period of shock, distress, and mourning, the majority of individuals or couples who experience a perinatal loss reportedly regain a sense of purpose and adjust well (Leon, 2001). While most couples recover through their own resourcefulness and resilience, studies suggest that 15%–25% of women who experience perinatal loss have enduring adjustment problems, and many seek professional help to guide them through this difficult time (Hughes et al., 2002; Klier, Geller, & Neugebauer, 2000; Swanson, 1999). At present, the various factors (individual, familial, economic, medical, cultural, and religious) that affect long-term psychological reactions to perinatal loss are not well known. We next provide a brief review of the unique exigencies and circumstances of perinatal loss, which provides a background for the reader to appreciate the study goals.

The Unique and Systemic Impact of Perinatal Loss

Contrary to other child losses, society often views perinatal loss as insignificant, leaving parents feeling extremely alone and invalidated in their grief (Vance et al., 1995). Parents may feel the world goes on as though their child, and their role as a parent, was not just lost but never existed. A perinatal loss can also cause a woman to feel like her body has betrayed her, as though there is something wrong with her womanhood, compounding feelings of self-blame and guilt (Cote-Arsenault & Mahlangu, 1999). Mothers and fathers have to face the task of explaining what happened to family and friends, when they themselves may not fully understand what happened, as often there is no identifiable cause for the loss (Nikcevic, Kuczmierczyk, Tunkel, & Nicolaides, 2000).

Perinatal loss can cause strain on a marriage as couples may find themselves grieving at different times or in different ways,

leaving the couple often feeling unsupported or estranged (De Montigny, Beaudet, & Dumas, 1999; Samuelsson, Radestad, & Segesten, 2001). Siblings of an infant who dies are also affected by their own sadness and/or the grief and sadness they witness around them (Balk, 1991). Parents may have difficulty supporting their children during this difficult time, particularly if parents experience significant mental health symptoms and functional impairment (De Montigny et al., 1999; Grout & Romanoff, 2000; Wilson, 2001). In addition, mothers' heightened anxiety during a subsequent pregnancy (Cote-Arsenault & Bidlack, 2001) may affect parenting style and attachment behavior of the next-born infant (Hughes, Turton, Hopper, McGauley, & Fonagy, 2001; Allen, Lewinsohn, & Seeley, 1998).

Mental Health Outcomes Following Perinatal Loss

While the severity of mental health distress typically recedes over the first year following a perinatal loss, around one-fifth of women continue to experience symptoms at a clinical level 12 months after the loss (Boyle, Vance, Najman, & Thearle, 1996). Turton et al. (2001) estimated that the lifetime risk for PTSD from perinatal loss was 29% and that approximately 20% of mothers experience depression and PTSD in their subsequent pregnancy. Vance and colleagues (1995) compared 220 perinatally bereaved families with 226 families who experienced successful birth and found that the bereaved families reported significantly more symptoms of depression and anxiety 2 and 8 months after the loss, although their symptoms decreased significantly between these two times. Mothers' anxiety and depression was higher than fathers at both follow-up intervals (Vance et al., 1995). While the generalizability of each of these studies is inadequate due to research limitations, including low sample size, self-selected samples or samples of convenience, and lack of control for confounding stress-related variables, these data suggest that women who have previously experienced a perinatal loss are at risk for a host of mental health complications, particularly during a subsequent pregnancy.

Complicated grief (e.g., Prigerson et al., 1999) may best capture the enduring mental health impact of perinatal loss (Bennett et al., 2005). A rapidly increasing body of strong clinical and empirical evidence suggests that complicated grief is distinct from

normal grief, PTSD, and depression (e.g., Bonanno, Neria, Mancini, Coifman, Litz, & Insel, 2007; Prigerson et al., 1995). Most previous studies of perinatal loss failed to include complicated grief as a potential outcome, in part because it may have been assumed that PTSD was the best fitting construct associated with significant traumatic loss. In addition, complicated grief is not currently a formal diagnosis in the *Diagnostic and Statistical Manual of Mental Disorders* (4th edition, DSM-IV; American Psychiatric Association, 1994), although provisional diagnostic criteria have been proposed and are currently used in bereavement research (e.g., Prigerson et al., 1999; Shear et al., 2005). Given the dearth of research exploring the nature of reactions following a perinatal loss, three dependent variables (complicated grief, posttraumatic stress, and depression/anxiety) were used in this study to better understand what best captures the psychological sequelae of perinatal loss and how independent variables may differentially predict these various symptom categories.

Clinical Care for Perinatal Loss

In an effort to promote recovery from the loss while patients are still in the hospital, multidisciplinary teams provide support, validation, and assistance in planning for the adjustment period post-hospitalization. It is standard to facilitate grieving by encouraging the parents to consider having direct contact with their dead or dying infant, including seeing and/or holding the baby (Bennett et al., 2005). Parents are often provided with mementos to take home, including photographs of their dead child, a lock of hair, a footprint, and possibly a blanket. Many hospitals provide the services of a chaplain and/or a social worker to help the couple with bereavement and funeral planning, which in some states is mandated by law (Hughes et al., 2002; Lasker & Toedter, 1994). Some hospitals and/or community agencies offer support groups so that couples have a place to grieve with others, thereby reducing stigma and isolation (Hughes et al., 2002; Lasker & Toedter, 1994; Cuisinier, Kuijpers, Hoogduin, de Graauw, & Janssen, 1993). A social worker or bereavement counselor often follows up with the couple some weeks later to assess how they are coping and to offer additional support or a mental health referral when necessary (Bennett et al., 2005).

Generally, it appears that patients are satisfied and appreciative of the hospital care they receive (Cuisinier et al., 1993; Lasker & Toedter, 1994). On the other hand, some studies have shown that standard practices may increase distress following a perinatal loss. One retrospective cohort study by Hughes et al. (2002) compared 65 pregnant women who had previously experienced a stillbirth to a matched control group of 60 women experiencing their first pregnancy. These researchers also compared women within the stillbirth group who saw and held their dead baby to those who did not. Hughes and colleagues found that women who saw and held their dead babies reported significantly higher depression and PTSD symptom severity in the third trimester of their subsequent pregnancy than both of the comparison groups, and significantly higher PTSD scores 1 year after their subsequent birth. These results suggest that standard procedures may be counterproductive and possibly put women at higher risk for mental health complications. Perhaps some individuals may be more distressed and haunted by the loss if they are asked to process the loss prematurely or in a manner that is inconsistent with their personal style and current needs (cf. Bonanno et al., 2002). However, it is important to underscore that the Hughes et al. study compared self-selected groups of women and relied on retrospective accounts of loss experiences in women who were about to deliver their next child, which poses a challenge to internal validity. There are also a number of potentially confounding variables that could have influenced the women's choice to see and hold their babies, as well as influenced the differential outcome between women who chose to do so and those who did not (e.g., attachment to the unborn child, coping style, time allotted to make decisions about rituals, previous perinatal loss experience, general satisfaction with hospital care).

Potential Predictors of Risk and Resilience

Variables contributing to the development of functionally interfering psychological distress are the subject of intense study in the realms of internalizing disorders, traumatic stress, and loss or bereavement. Yet, there is a want for research exploring what contributes to an adaptive psychological recovery following perinatal loss. As such, the variables chosen for this investigation were

informed by the literature we now review from the relatively limited extant research on psychological adaptation following perinatal loss and from established findings on predictors of risk for and recovery from other mental health sequelae such as posttraumatic stress, grief, and other internalizing symptoms. There are several individual characteristic variables that could contribute to adaptation postloss. It is not well known, for example, how a woman's age, previous medical and mental health history, previous perinatal loss history, fertility history, the gestational age of the child at the time of the loss, or the existence of healthy children born before or after the loss may impact the trajectory of psychological recovery from perinatal loss. A study by Turton et al. (2001) that examined correlates and predictors of PTSD symptomatology following a perinatal loss in a sample of 82 women found that medical history, including history of mental illness, previous experience of early miscarriage or pregnancy termination, and the gestational age of the lost pregnancy were not significantly associated with PTSD. Other studies have found gestational age of the fetus to be associated with grief reactions, with women who were further along in their pregnancy showing more intense symptoms of distress (Lasker & Toedter, 1994; Cuisinier et al., 1993). For some women, having another child significantly improves the trajectory of mental health symptoms associated with perinatal loss (Conway & Russell, 2000; Swanson, 1999). Many women find the passage of time to be the most important contributor to the healing process, with symptoms of grief typically remitting within the first year after the loss (Cuisinier et al., 1993; Swanson, 1999; Turton et al., 2001).

How a person approaches negative life events may also be an important predictor of adjustment over time. Coping resources and style of coping have often been found to predict adjustment and functioning following other types of losses (e.g., Bonanno & Kaltman, 1999). Some personality characteristics have been associated with adaptive coping, such as emotional stability, which can act as a buffer to the natural upheaval a loss may introduce (Stroebe & Stroebe, 1993). Studies conducted with high-risk perinatal populations, including homeless pregnant women, adolescent expectant mothers, pregnant substance abusers, women using in vitro fertilization, and women with antenatal fetal death, demonstrate that avoidant coping is related to negative outcomes

(Huizink, Robles de Medina, Mulder, Visser, & Buitelaar, 2002), indicating that avoidant coping may be a general predictor of risk following perinatal loss.

In times of hardship, social support is a robust predictor of recovery and adaptation (e.g., Brewin et al., 2000). Toedter et al. (2001) reported convergent evidence from eight studies indicating that perception of support from friends and family was consistently related to lower grief scores. However, perinatal loss is sometimes considered a "silent loss" because others may not feel comfortable talking about the loss with the family. For most people, there is no prior knowledge to use as a reference point and no experiential history, which makes it difficult for significant others to empathize. Turton et al. (2001) found that perceived insufficient or uncertain support from family members following a perinatal loss was associated with greater PTSD symptom severity. Thus, we expect that perceptions of adequate social support following perinatal loss should be associated with reports of fewer symptoms of PTSD, and perhaps decreased symptoms of grief and depression as well.

While previous research has contributed to our understanding perinatal loss as a unique, potentially traumatizing experience, at present there remain many gaps in our knowledge regarding contributors to psychological risk versus resilience following perinatal loss. In this exploratory study, we sought to better understand the mental health impact of perinatal loss, including complicated grief, traumatic stress, and general internalizing symptoms (anxiety/depression) in a group of women from four Boston-area hospitals. The correlates and predictors of mental health impact, including acute emotional response, social support, trauma history, coping style, fetal age, and pregnancy history, were also examined. Finally, aspects of in-hospital and posthospital clinical care were investigated, including engagement in controversial bereavement rituals and satisfaction with care.

Method

Sample Identification and Recruitment

Four major Boston-area hospitals collaborated and participated in this research effort, each generating a list of women who had experienced a perinatal loss at their facility within the previous 5

years. These lists were then reviewed by the respective social work staffs and obstetric and gynecological physicians who provided care for each woman around the time of her loss. During this review, anyone for whom participation was deemed to be potentially emotionally harmful due to the sensitive nature of this research was removed from the potential subject pool (<1% of the potential subject pool at each hospital). Each woman was then sent a letter, signed by her personal obstetrician/gynecologist, describing the study and requesting permission to send a consent form and study materials. The percentage of women who responded to the initial letter from each of the four hospitals was modest (33%, 13%, 9%, and 7%, respectively). This low response rate was likely affected by the 5-year retrospective recruitment procedure because women may have felt as though they had moved past this experience or they had changed geographical location since their loss, which resulted in some letters being returned because of changed addresses. Each woman who returned a postcard indicating her willingness to participate in the study was then mailed a survey and an informed consent form, which she was asked to sign and send back with her survey data.

When the survey and consent form were returned, women were interviewed over the phone for a more extensive report of their experiences of the loss while in the hospital, including care received and satisfaction with care, their experiences in the acute period following the loss, and related experiences since the loss. Participants were reminded that they were free to decline participation at any time and were offered mental health referral information for current or future distress, upon request or if such referral was deemed appropriate by the interviewing clinician. Participants were offered $10 compensation for their participation, which they could also opt to donate to a perinatal loss charity of their choice.

Sample Characteristics

The study group consisted of 91 women who experienced a perinatal loss within the previous 5 years at one of four Boston-area hospitals. Perinatal loss was defined as fetal demise beyond 20 weeks gestation through infant death 1 month postpartum. Women who lost a child due to sudden infant death syndrome (SIDS) or elective abortion were not recruited. Women under age 18 were excluded.

Ninety-one women completed surveys, and 55 (60%) later participated in a phone interview. The mean age at the time of participation was 37 years ($SD = 4.7$). The average time since the loss was 35 months ($SD = 20$). The average gestational age at the time of the loss was 28 weeks ($SD = 7.1$). The ethnic distribution was skewed, with Caucasians making up 92% of the sample and African Americans, Asians, and Latinas making up 5%, 2%, and 1% of the sample, respectively. At the time of participation, 97% of the women were married, 2% reported that they were separated or divorced, and 1% were single. Fifty-one percent achieved a graduate degree, 37% reported having a college degree, and 12% graduated high school. Fifty-one percent reported an annual household income of $100,000 or more, and 22% of the sample reported an annual income of $50,000 or less.

For 91% of the women interviewed, the lost pregnancy was a planned pregnancy. Thirty-two percent reported receiving fertility services to achieve the pregnancy that was lost. One individual reported delivering two live babies at the time of her loss, and 10% indicated that at least one baby survived at the time of the loss; however, for 89%, the pregnancy and delivery did not result in a live child. The majority (81%) carried and lost one fetus, while 13% were carrying twins at the time of the loss, and 6% carried triplets or more. Thirty percent of the women interviewed reported they were not informed of the cause of their baby's death.

Following delivery, 84% of the sample interviewed over the phone reported seeing their dead baby, and 78% reported holding their baby after his or her death. Eighty-two percent of the women interviewed reported that pictures were taken of their baby following the loss. Sixty-two percent of women acknowledged there were both positive (e.g., increased feelings of support and closeness) and negative (e.g., decreased frequency and quality of communication) changes in their relationship with their significant other as a result of the loss experience. Twenty-two percent of women reported they were unable to or chose not to have a baby following their loss. Eighty percent of the women interviewed reported trying to have another baby after their loss, and 63% reported successfully conceiving and delivering another baby following the loss. Seventy-eight percent of women reported having experienced the successful birth of a child either before or after their perinatal loss.

Measures

In order to ensure content validity, a series of multidisciplinary focus groups, consisting of care providers and researchers from collaborating departments of obstetrics, social work, and psychology at the hospitals and research centers involved in this study, were conducted to generate a variable set capturing the many unique facets of perinatal loss. Measures were then culled or created to capture the phenomenology of this unique loss. For this study, a subset of representative and relevant variables were chosen for analysis, taking sample size into consideration, including variables found in or computed from each of the following measures.

PERINATAL GRIEF SCALE (PGS; TOEDTER, LASKER, & ALHADEFF, 1988)

The PGS is a 33-item measure that asks women to reflect on their feelings of grief for the lost child within the past month. The internal consistency ($\alpha = .95$) of this measure is very good. The PGS has three subscales, Active Grief, Difficulty Coping, and Despair, indicating an increasingly severe grief response. The scales can be summed to yield a total score, which was used for this study. A clinical cut off of 91 for this measure was established through a meta-analysis of 22 studies using the PGS from four countries with nearly 2,500 clinical and nonclinical participants (Toedter et al., 2001).

INVENTORY OF COMPLICATED GRIEF (ICG; PRIGERSON ET AL., 1995)

The ICG is a nine-item measure that assesses symptoms of complicated grief experienced over the last month. The ICG is the gold standard measure of complicated grief and has excellent psychometric properties. The Cronbach alpha for this sample was very good ($\alpha = .88$).

The self-report scores on the PGS and the ICG were summed to compute a complicated grief outcome variable for the hierarchical regression analyses used in this investigation. The internal consistency was good ($\alpha = .81$).

PTSD CHECKLIST (PCL; WEATHERS ET AL., 1993)

The civilian version of the PCL is a 17-item measure that assesses each PTSD symptom specified in the DSM-IV. The PCL is a widely used paper-and-pencil measure of PTSD, has been shown to have excellent reliability ($\alpha = .91$ for this sample), and correlates strongly with other measures of PTSD symptomatology (Weathers et al., 1993). The PCL was used in this study to assess symptoms of PTSD related to the perinatal loss experienced in the past month.

BRIEF SYMPTOM INVENTORY 18 (BSI 18; DEROGATIS, 1993)

This 18-item version of the BSI evaluates psychological distress and psychological problems. For the purposes of this study, two subscales of the BSI were used to measure levels of depression and anxiety experienced in the past month. The dimension and global scores from the BSI 18 are highly correlated (i.e., $>.90$). The alpha coefficients for the anxiety and depression subscales are good, equaling .81 and .85, respectively. For the hierarchical regression analysis in this study, self-report scores for these subscales were summed to create a variable capturing general distress, postulated to be distinct from traumatic stress or bereavement symptomatology. The Cronbach alpha for the summed scales was very good ($\alpha = .92$).

WAYS OF COPING QUESTIONNAIRE (FOLKMAN & LAZARUS, 1988)

This 67-item questionnaire, used to assess individuals' coping styles, has been found to be highly reliable across samples (Vitaliano, Maiuro, Russo, & Becker, 1987). Individuals were asked how much they used the specific coping strategies in dealing with the loss of their child. Items are rated on a 4-point Likert scale and grouped into eight coping style subscales: Confrontive Coping, Distancing, Self-Controlling, Accepting Responsibility, Escape/Avoidance, Planful Problem Solving, Positive Reappraisal, and Seeking Social Support.

As a result of the focus group, the Ways of Coping Questionnaire subscales were grouped together representing adaptive and maladaptive ways of managing perinatal loss specifically. *Maladaptive coping* was represented by the Self-Controlling Scale (e.g., I try to keep my feelings to myself; keep others from knowing how bad things are), the Distancing Scale (e.g., go on as if nothing happened; try to forget the whole thing), the Escape/Avoidance Scale (e.g., try to make myself feel better by eating, drinking, smoking, using drugs or medication; avoid being with people in general),

and the Accepting Responsibility Scale (e.g., criticize or lecture myself; realize I brought the problem on myself). *Adaptive coping* was represented by the Confrontive Coping Scale (e.g., I let my feelings out somehow; stand my ground and fight for what I want), the Planful Problem Solving Scale (e.g., concentrate on what I have to do next, the next step; I'm making a plan of action and following it), the Positive Reappraisal Scale (e.g., I'm changing or growing as a person in a good way; I am inspired to do something creative), and the Seeking Social Support Scale (e.g., talk to someone about how I am feeling; accept sympathy and understanding from someone). For the present sample ($N = 91$), the internal consistency of the items representing both omnibus coping subscales was good (maladaptive coping subscale $\alpha = .81$; adaptive coping subscale $\alpha = .82$).

CRISIS SUPPORT SCALE (CSS; JOSEPH, ANDREWS, WILLIAMS, & YULE, 1992)

The CSS is a measure of the availability of support after a traumatic experience. This 14-item scale has good psychometric properties and assesses social support at the time of the loss, current social support with regard to the past traumatic event, and overall perception of social support related to the event. The Cronbach alpha for the sample was fair ($\alpha = .71$).

LIFE EVENTS CHECKLIST (LEC; GRAY, LITZ, & WANG, 2002)

The LEC, a 16-item screening index of exposure to potentially traumatizing events across the life span, has good coverage of high base-rate events. In a recent study, the test-retest reliability was .82 (Gray, Litz, Hsu, & Lombardo, 2004). This measure was used to assess life span traumatic events other than perinatal loss.

PERINATAL LOSS INTERVIEW (BENNETT, SARNOFF-LEE, LITZ & MAGUEN, 2003)

This 45–60-minute semistructured phone interview was designed through focus group meetings and expert consensus to acquire further qualitative and quantitative information regarding each participant's experiences surrounding her perinatal loss and the care she received at the time of her loss and throughout her grieving process. This interview inquired further into the circumstances of the perinatal loss, including suddenness of the loss, partner support received, investment in and attachment to the unborn baby, rituals experienced following the loss, satisfaction with these

experiences, and overall satisfaction with emotional support and care providers in the hospital. In this investigation, quantitative data from this interview were used to assess the intensity of women's acute emotional response while in the hospital. This variable was created by the sum of Likert-scale ratings (1 = very mild to 7 = very severe) of nine emotion states women reported experiencing (fear, helplessness, horror, guilt, sadness, unreality, confusion, anger, and numb) when they learned that their baby had died. The alpha for this variable was fair ($\alpha = .72$). During the interview, women were also asked if they had a successful birth before or after the perinatal loss experience resulting in a live child. This variable was coded 1 = yes and 2 = no.

Results

Analytic Strategy

Independent-sample *t*-test analyses were used to examine the difference between raw scores for this sample on the BSI and those for the comparative BSI standardization samples. Raw scores were computed for other measures of symptomatology to explore the extent of psychopathology reported by the sample. Correlational analyses were used to investigate the relationship between self-reports of mental health functioning and potential predictors of such functioning.

Three hierarchical multiple regression analyses were employed to determine the unique predictors of three categories of mental health symptoms: self-reported complicated grief, PTSD, and general distress (anxiety/depression). Scores on the outcome measures chosen for this investigation (PGS, ICG, PCL, and BSI) were highly correlated, thus, some measures were combined for the regression analyses (PGS and ICG; BSI anxiety and depression subscales) to avoid multicollinearity (see Table 2 for correlations). However, despite the high correlation with the complicated grief variable, the PCL was examined as a separate outcome variable due to the theoretically distinct nature of posttraumatic stress. Indeed, post hoc analyses indicated that when the PCL was combined with the PGS and the ICG, the internal consistency was very low ($\alpha = .30$). Because some of the variables in the regression equation were taken from the perinatal loss interview, the total sample

size for these equations was 55 and seven independent variables were used, resulting in a ratio of 8 cases to each independent variable, which meets the recommended standard of 5 or more cases per independent variable (Tabachnick & Fidell, 2001).

The sum of stressful life events experienced, outside of the perinatal loss experience, was entered in the first step of each regression equation to account for the contribution of other life span traumatic events. Time passed since the loss was entered in the second step to account for the potentially confounding variability introduced by the natural progression of recovery over time. The gestational age of the child at the time of loss was entered in the third step. The self-report of acute response at the time of the loss was entered in the fourth step. The sum of responses on the four maladaptive coping scales of the WOC was entered in the fifth step, and the total report of perceived social support in reference to the loss was entered in the sixth step. The seventh and final step included an indicator of the existence of live children, born either before or subsequent to the perinatal loss, or both.

Initial Findings

Nearly one-half of the women in the total sample of 91 participants (48%) reported experiencing no non-loss-related traumatic events in their lifetime, and the mean for the sample was one non-loss-related traumatic event ($SD = 1.5$). Three individuals (3.3%) met criteria for PTSD based on the recommended cutoff score of 50 on the PTSD checklist (Weathers et al., 1993). One individual met criteria for complicated grief (Prigerson et al., 1995). On the Perinatal Grief Scale, 30% of the total sample scored above the clinical cutoff. The raw score mean for the total sample on the BSI anxiety subscale was 2.06 ($SD = 1.96$), which is roughly equivalent to the raw score mean for the adult female psychiatric outpatients in the standardization sample for the BSI (Derogatis, 1993; $M = 1.82$, $SD = 1.02$, $t = 1.85$, $df = 120$, *ns*) and significantly greater than the raw score mean for the BSI standardization sample of adult female nonpatients ($M = .44$, $SD = .54$) by roughly three standard deviations ($t = 13.5$, $df = 120$, $p < .01$). The raw score mean for the total perinatal loss sample on the BSI depression subscale was 1.94 ($SD = .85$), which is nearly equivalent to the raw score mean for the BSI standardization sample of adult female psychiatric outpatients (Derogatis, 1993; $M = 1.90$, $SD = 1.05$, $t = .12$, $df = 120$, *ns*) and significantly greater than the raw score mean for the BSI standardization sample of adult female nonpatients ($M = .36$, $SD = .56$) by close to three standard deviations ($t = 22.6$, $df = 120$, $p < .01$).

TABLE 1 Helpfulness Ratings for Hospital Rituals

	Rating (%)				
Ritual	Extremely helpful	Somewhat helpful	Neither	Somewhat detrimental	Extremely detrimental
Seeing the baby	83	4	6	0	2
Holding the baby	85	2	4	0	2
Taking pictures	75	12	8	2	0

As reported by only the women who also participated in the Perinatal Loss Interview ($N = 55$), 84% of women chose to see their baby after the loss and 83% of those who made this choice described seeing their baby as extremely helpful for their coping and recovery process, while only one women described seeing her baby as extremely detrimental (see Table 1). Of the 78% of this sample who held their dead baby, 85% of these women reported this to be extremely helpful, and just one person reported this ritual was extremely detrimental. Finally, of the 82% of the sample who had pictures taken of their baby, 75% reported that it was extremely helpful, and one person reported that it was somewhat detrimental.

Correlational Analyses

Several significant associations emerged from a correlational analysis of the variable set (see Table 2). The sample size for all of the variables was 91, except for the acute response variables ($N = 55$) and the other children variable ($N = 55$). As shown in Table 2, more time passed since the loss was significantly associated with lower reports of symptoms for each dependent variable except depression. A more intense emotional reaction in the acute

TABLE 2 Correlations of Mental Health Outcomes With Predictors of Adaptation to Perinatal Loss

	CG	PTS	Dep/Anx
Time	−.29**	−.31**	−.22*
PTE	.15	.09	−.06
Fetal age	.13	.05	.15
Acute	.34**	.35**	.20
Neg cope	.58***	.65***	.64***
Support	−.42***	−.30***	−30**
Other kids	.40**	.40**	.29*
PPL	−.29*	−.29*	−.15
HSS	−.23	−.18	−.28*
See	.12	.18	.18
Hold	−.01	.07	.07
Picture	−.11	−.06	.03
CG		.87**	.71**
PTS	.87**		.70**
Dep/Anx	.71**	.70**	

Note. CG = complicated grief; PTS = posttraumatic stress; Dep/Anx = depression/anxiety; PTE = potentially traumatizing events; Acute = acute emotional response to loss; Neg cope = negative coping strategies; Support = perceived social support; PPL = previously experienced perinatal loss; HSS = perceived hospital staff sensitivity; See = seeing the baby after the loss; Hold = holding the baby after the loss; Picture = having pictures taken of the baby after the loss. All dichotomous variables (other kids, PPL, see, hold, and picture) were coded as 1 = yes, 2 = no. HSS was rated on a Likert scale where 1 = low sensitivity/satisfaction and 5 = high sensitivity/satisfaction.
*$p < .05$; **$p < .01$; ***$p < .001$.

period following the loss was associated with higher reports of perinatal grief and posttraumatic stress symptoms. Increased use of maladaptive coping and lower reports of social support were both associated with higher reports of symptoms for every dependent variable. Having other children was associated with lower reports of all symptom categories except anxiety, and the experience of a previous perinatal loss was associated with higher reports of perinatal grief and posttraumatic stress. None of the ritual variables (seeing, holding, and taking pictures of the baby) were significantly correlated with the outcome variables, however, higher perceived hospital staff sensitivity was significantly associated with lower reports of anxiety.

Hierarchical Regression Analyses

A summary of the findings from all of the hierarchical regression analyses can be found in Table 3. More detailed descriptions of the significant findings for each dependent variable are as follows.

COMPLICATED GRIEF

Six significant regression equations predicted variance in complicated grief. Based on adjusted R^2 values and degrees of freedom, the best fit equation, $R = .82$, $R^2 = .67$, adjusted $R^2 = .61$, $F(7, 42) = 11.90$, $p < .001$), included the following significant coefficients: gestational age (Std. $\beta = .24$, $p = .01$, $\Delta R^2 = .03$), acute

TABLE 3 Summary of Results From Three Hierarchical Regression Analyses

	Outcome variable		
Predictor[a]	Complicated grief	PTSD	Depression/anxiety
Other PTEs	$\Delta R^2 = .02$	$\Delta R^2 = .01$	$\Delta R^2 < .01$
	$\beta = .11$	$\beta = .02$	$\beta = -.01$
	ns	*ns*	*ns*
Time since loss	$\Delta R^2 = .10$	$\Delta R^2 = .14$	$\Delta R^2 = .08$
	$\beta = -.14$	$\beta = -.13$	$\beta = .12$
	ns	*ns*	*ns*
Fetal age	$\Delta R^2 = .03$	$\Delta R^2 = .01$	$\Delta R^2 = .06$
	$\beta = .28$	$\beta = .14$	$\beta = .21$
	$p = .004$	*ns*	$p = .04$
Acute response	$\Delta R^2 = .16$	$\Delta R^2 = .17$	$\Delta R^2 = .06$
	$\beta = .38$	$\beta = .34$	$\beta = .16$
	$p = .001$	$p < .001$	*ns*
Maladaptive coping	$\Delta R^2 = .18$	$\Delta R^2 = .25$	$\Delta R^2 = .44$
	$\beta = .24$	$\beta = .38$	$\beta = .79$
	$p = .03$	$p = .001$	$p < .001$
Social support	$\Delta R^2 = .11$	$\Delta R^2 = .09$	$\Delta R^2 < .01$
	$\beta = -.41$	$\beta = -.38$	$\beta = -.12$
	$p < .001$	$p < .001$	*ns*
Other kids	$\Delta R^2 = .06$	$\Delta R^2 = .06$	$\Delta R^2 = .03$
	$\beta = .27$	$\beta = .28$	$\beta = .20$
	$p = .01$	$p = .01$	$p = .07$

Note. PTE = potentially traumatizing events.
[a]Entered into regression hierarchically in descending order.

emotional response (Std. $\beta = .36$, $p < .01$, $\Delta R^2 = .16$), maladaptive coping (Std. $\beta = .29$, $p = .02$, $\Delta R^2 = .18$), social support (Std. $\beta = -.41$, $p < .01$, $\Delta R^2 = .11$), and other children (Std. $\beta = .27$, $p = .01$, $\Delta R^2 = .06$).

PTSD

Six regression equations significantly predicted variance in reported PTSD symptomatology. The best fit model, ($R = .85$, $R^2 = .72$, adjusted $R^2 = .67$, $F(7, 42) = 15.29$, $p < .001$), included the following coefficients: acute emotional response (Std. $\beta = .34$, $p < .001$, $\Delta R^2 = .17$), maladaptive coping (Std. $\beta = .38$, $p = .001$, $\Delta R^2 = .25$), social support (Std. $\beta = -.38$, $p < .001$, $\Delta R^2 = .09$), and other children (Std. $\beta = .28$, $p = .005$, $\Delta R^2 = .06$).

ANXIETY/DEPRESSION

Four significant regression equations predicted variance in depression. Perceived social support (Std. $\beta = -.11$, $p = .30$, $\Delta R^2 < .01$) and other children (Std. $\beta = .20$, $p = .07$, $\Delta R^2 = .03$) did not add a significant amount of variance to the model. Therefore, the best fit model, ($R = .80$, $R^2 = .64$, adjusted $R^2 = .60$, $F(5, 42) = 15.078$, $p < .001$), included the following coefficients: gestational age (Std. $\beta = .21$, $p = .04$, $\Delta R^2 = .064$) and maladaptive coping (Std. $\beta = .786$, $p < .001$, $\Delta R^2 = .44$).

Discussion

In this preliminary study, we set out to learn more about the experience and aftermath of perinatal loss, particularly risk and recovery variables associated with three mental health outcomes: complicated grief, posttraumatic stress, and anxiety/depression. These outcome variables are highly correlated, which may indicate that they represent a higher order construct of general distress, however, when combined the items in these measures produce a low alpha coeffiecient, suggesting that the items do not coexist together well (e.g., $\alpha = .30$ for the posttraumatic stress and grief measure items). Alternatively, the high correlations may represent three different, yet highly related, constructs with a response pattern such that women who endorsed a high number of symptoms on one measure also reported a great deal of symptom distress on the other measures. In either case, the results suggest that women

were experiencing noteworthy levels of grief, anxiety, and depressive symptomatology, considering the average time passed (35 months) since the loss. The BSI scores suggest that the women studied were significantly more anxious and depressed than women in a nonclinical normative sample (Derogatis, 1993) and reported anxious and depressive symptomatology roughly equivalent to that of women in a psychiatric outpatient sample.

Reported history of other non-loss-related traumatic events did not predict perinatal loss-related symptomatology. Thus, adaptation to perinatal loss may be independent of the burden from other potentially traumatizing experiences. Similarly, the significance of time since the loss dropped out once other variables were entered into the model—namely, gestational age of the child at the time of death, degree of emotionality in the acute aftermath of the loss, engagement in maladaptive coping strategies, perception of social support, and existence of other healthy children. Again, given the high correlations between dependent variables, it is possible that these outcomes are not distinct and that these pathways are not specific but might refer to general predictors across different diagnostic categories. However, four important variables differentially predicted distress or recovery across the three outcome variables. The gestational age of the child accounted for a significant amount of the variance in reported complicated grief and anxiety/depression, but not PTSD. The intensity of the acute emotional response contributed to later complicated grief and posttraumatic stress, but not anxiety/depression. Maladaptive coping skills strongly predicted worse outcomes across all dependent variables, but this contribution was stronger for posttraumatic stress and anxiety/depression than for complicated grief. Lastly, social support appeared to be a significant protective variable for complicated grief and posttraumatic stress, but not for anxiety/depression.

Although there is no normative or prescriptive mode of grieving, as intense emotional expressions and self-disclosure can lead to worse outcomes and apparent stoic reactions can lead to adaptive recovery (e.g., Bonanno et al., 2002), it appears that decreasing various forms of maladaptive coping following perinatal loss promotes a healthier long-term response. The significant influence of coping style suggests that coping-focused interventions, such as cognitive behavioral therapy, may be helpful in the face of

significant loss over time. Social support also emerged as a highly significant predictor overall. It is possible that women who perceive an emotionally adequate degree of support from their family, friends, and/or co-workers may experience fewer or less enduring symptoms of grief. Facilitating social connection and support through structured support and/or therapy groups, online perinatal loss chat rooms, or partner or family counseling may be indicated for women at possible risk for mental health complications following perinatal loss. Helping women to identify important supports can be helpful if they are not sure who to go to for emotional, physical, or logistical help. Our results suggest that a simple screening or a more in-depth clinical interview to assess acute emotional response, coping style, and access to familial and social support, including other children, may have the potential to steer families in need to early intervention services.

On the other hand, most women were satisfied with, and appreciative of, the services provided to them in the hospital, including holding their baby and having pictures taken of their baby. Given the small sample size and the self-selected nature of the sample, the feedback provided by these participants on their experience of hospital rituals cannot be generalized or assumed to be representative of all women who experience perinatal loss. A prospective study with women randomized to receive such contact with their deceased child versus a more minimal contact methodology is necessary to fully elucidate the amount of benefit or harm associated with participation in these controversial rituals; however, a study of this kind would be quite controversial itself. Overall, it may be most appropriate for women and their families to decide what services, rituals, or interventions are right for them and their preferred style of coping. Unfortunately, following a perinatal loss there is typically only a brief window of hours during which time parents are supposed to decide and act, often when the mother is in acute physical and emotional pain or may be under the influence of anesthesia or medication. It may be helpful to inform all pregnant women of the small probability of perinatal loss in advance, however difficult this topic may be to broach, as well as the acute options available at their hospital for dealing with this low-probability event. Most pregnant women have existing thoughts or fears of pregnancy loss, so acknowledging these fears and discussing them openly in a prenatal, parenting, or lamaze

class setting; a doctor's appointment; or a written pamphlet may help a woman manage those worries.

Research Limitations and Future Directions

Research on perinatal loss poses challenges to investigators, such as multiple provider and/or hospital coordination, the low base rate of such losses at any one hospital or medical setting, and sensitive data collection with a grieving sample. Nonetheless, this exploratory study allowed us to identify several avenues for future research to improve upon and reinforce the significance of these findings. The skewed ethnic, economic, marital, and educational distribution of the sample in this study limits the generalizability of these results; however, it is important to keep in mind that many well-educated, working women are conceiving their first child later in life (over age 35), which also increases the risk and experience of perinatal loss for this population. Nevertheless, future research needs to include a more diverse and representative sample, perhaps through targeting minority groups in recruitment, offering incentives for participation, or increasing the bilingual capacities of the study staff. It is necessary for research to expand on the impact of culture and religion as potential mediators of outcomes from perinatal loss. Different cultures have very different expectations about having children, as well as different notions regarding the meaning of parenthood, the meaning of death, and the existence of an afterlife. Culture, language, and religious beliefs can affect how a mother, couple, or family experiences and comprehends the loss, the care they are provided, and the kind of assistance they may be able to utilize (e.g., a support group). Further, it is not well known whether or which current diagnostic categories accurately describe the psychological experience of perinatal loss; thus, future research should involve a factor-analytical investigation of the classification of perinatal loss.

As this was a self-selected sample, there was no investigator control of alternative confounding variables that might differentiate responders from nonresponders. The relatively small sample size in this study confined the complexity of the analyses that could be interpreted with confidence and limited the number of variables that could be examined in any given analysis. Further, participants

were asked to report on their loss experiences retrospectively, often several years postloss, which may lend significant hindsight bias to their reporting. Future research should increase recruitment and follow-up efforts as much as possible without overburdening or coercing women into participating. Approaching women while in the hospital, just after their discharge, or approaching those with specific risk factors identified preloss may not only increase the chances of securing a representative sample but would also allow for a prospective, longitudinal investigation of the trajectory of adaptation following the loss. While the nature of this research is extremely sensitive and may be upsetting for women, many participants in our study reported the survey and phone interview to be therapeutic, validating the feelings they were experiencing and providing an opportunity to share the loss experience with a sensitive and understanding professional.

Given the current controversies in the field, it is also important that future research efforts continue to examine the efficacy of various aspects of standard care (e.g., having the parents hold their dead child, collection of child mementos). Satisfaction with care should also be carefully examined within this context. Overall, more rigorous scientific investigations of families who experience perinatal loss will inform caregivers about the best way to facilitate recovery from this unique bereavement experience. Finally, concurrent continued investigation of the organic factors associated with perinatal loss occurrence will inform medical care for those at risk and hopefully decrease the likelihood of this potentially traumatic experience in the future.

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